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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/090,315	06/04/1998	HOWARD E. RHODES	M4065.059/P0	3755
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DICKSTEIN SHAPIRO MORIN & OSHINSKY LLP			GEBREMARIAM, SAMUEL A	
2101 L Street, NW			ART UNIT	
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2811

DATE MAILED: 11/09/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/090,315

Applicant(s)

RHODES ET AL

Examiner

Samuel A Gebremariam

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 August 2004.
2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2-4, 7-16, 28, 29 and 31-34 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 2-4, 7-16, 28, 29 and 31-34 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 7, 3, 4, 8 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koo US patent No. 6,169,295 in view of DeTemple et al. US patent No. 5,572,653.

Regarding claim 7, Koo teaches (fig. 3) an imaging device (34) comprising: a frame (36) having a support structure, the support structure supporting a semiconductor chip (40); the semiconductor imaging chip supported by the support structure (36), the semiconductor imaging chip including a photosensitive element (the device is IR transceiver), a package (44) encapsulating the frame, support structure and the semiconductor chip in a transparent material (44) covering the chip, the photosensitive elements receiving the image through the transparent material (44); and an optical light transmitting device (46) supported in line with an image (IR emitter and receivers) being received by the photosensitive elements of the semiconductor imaging chip.

Koo does not explicitly teach an array of photosensitive elements, only teaches a single structure.

It is conventional in the art to form a plurality of photosensitive elements in order to make a functioning device. Furthermore DeTemple teaches the use of an array photosensitive device (array of IR transceivers, col. 5, lines 31-49).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to form a plurality of photosensitive elements taught by DeTemple in the structure of Koo in order to improve the detection sensitivity of the device.

Regarding claim 3, Koo teaches substantially the entire claimed structure of claim 7 above including transparent material includes molded epoxy resin (44, epoxy is a plastic material).

The limitation that the transparent material is injection-molded epoxy is not given patentable weight, because it is considered a product-by-process claim. "[E]ven though product-by process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985).

Regarding claim 4, Koo teaches substantially the entire claimed structure of claim 7 above including leads (50) connected to the semiconductor material, the leads being partially encapsulated in the transparent material (44).

Regarding claim 8, Koo teaches substantially the entire claimed structure of claim 7 above including the optical light-transmitting device is formed of the transparent material (44).

Regarding claim 32, Koo teaches substantially the entire claimed structure of claim 7 above including the optical light-transmitting device is a lens (46).

Claims 9, 10 and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koo, DeTemple and in view of Park et al. US patent No. 5,053,298.

2. Regarding claim 9, Koo teaches substantially the entire claimed structure of claim 7 above except explicitly stating the optical light-transmitting device is a color filter being formed of the transparent material.

It is conventional and also taught by Park (fig. 2) incorporating color filter patterns (49, 38 and 43) within transparent material (37).

It would have been obvious to one of ordinary skill in the art to incorporate the color filter patterns in the structure of Koo as taught by Park in order to select the type of light that is reaching the photosensitive element.

The limitation that the color filter is formed by color tinting is not given patentable weight, because it is considered a product-by-process claim. "[E]ven though product-by process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior

product was made by a different process.” *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985).

Regarding claim 10, Koo teaches substantially the entire claimed structure of claim 7 above including a color filter array (38, 43 and 49, fig. 2, Park) into the transparent material (37).

Regarding claim 34, Koo teaches substantially the entire claimed structure of claim 7 above except explicitly stating that the optical transmitting device is color filter being supported from the package of the transparent material.

DeTemple teaches the possibility of packaging IR emitters and IR sensors separately (col. 31-40).

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the device arrangement taught by DeTemple in the combined process of Koo and Park in order to form an array of optical device.

3. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Koo and in view of Anderton et al. US patent No. 5,596,228.

Regarding claim 2, Koo teaches substantially the entire claimed structure of claim 7 above except explicitly stating that the photosensitive elements are arranged in a two dimensional array.

It is conventional and also taught by Anderton (col. 1 line 13-42) to arrange light sensitive elements in two dimensions.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to arrange the light sensitive structure of Koo in two dimensions as taught by Anderton in order to improve the detection sensitivity of the device.

4. Claims 11-13, 15 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Enomoto US patent No. 5,321,297 in view of Koo.

Regarding claim 11, Enomoto teaches (fig. 1) an imaging system, comprising: an image source and a semiconductor device, a plurality of semiconductor devices includes first, second and third semiconductor devices (fig. 1A) (2).

Enomoto does not teach that a respective frames, where the first, second and third semiconductor device is encapsulated in respective first, second and third packages, where the package is a plastic material.

Koo teaches (fig. 3) a semiconductor device (40) that is encapsulated in a plastic material, including a frame (36) having a support structure.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the frame and the packaging material taught by Koo in the structure of Enomoto in order to form a semiconductor device that is packaged.

The limitations of said image source being arranged to transmit image simultaneously onto each of a plurality of imaging devices; the first second and third devices receiving the image and generating corresponding signals and first, second and third packages for protecting and supporting each of the first, second and third semiconductor devices are not given patentable weight because, a recitation of the intended use of the claimed invention must result in a structural difference between the

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claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. In a claim drawn to a process of making, the intended use must result in a manipulative difference as compared to the prior art. See *In re Casey*, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 136 USPQ 458, 459 (CCPA 1963).

The limitation that the transparent plastic material is injection-molded resin is not given patentable weight, because it is considered a product-by-process claim. "[E]ven though product-by process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985).

Regarding claim 12, Enomoto teaches substantially the entire claimed structure of claim 11 above including the image source includes a lens (46).

Regarding claim 13, Enomoto teaches substantially the entire claimed structure of claim 11 above including the imaging devices include complementary color filters (fig. 1A).

Regarding claim 15, Enomoto teaches substantially the entire claimed structure of claim 11 above the packages include red, green and blue filters (fig. 1A, col. 1, lines 28-36).

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Regarding claim 16, Enomoto teaches substantially the entire claimed structure of claim 11 above except explicitly stating that the packages include cyan, magenta and yellow filters.

Koo teaches first, second and third packages including red, green and blue filters.

Cyan, magenta and yellow colors are fundamental colors that all colors are formed from. Furthermore cyan, magenta and yellow color filters are conventional in the art.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to form color filters based on the primary colors as claimed in the structure of Enomoto in order to selectively transmit light of particular wavelength.

5. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Enomoto, Koo and in view of Park.

Regarding claim 14, Enomoto teaches substantially the entire claimed structure of claim 11 above except explicitly stating that the complementary color filters are molded into the packages.

It is conventional and also taught by Park molding color filters (49, 38, and 43, fig. 2) inside package material (37).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate color filter inside the package material as taught by Park in the structure of Enomoto in order to cut cost.

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6. Claims 28, 29 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Enomoto US patent No. 5,321,297 in view Koo.

Regarding claim 28, Enomoto teaches a semiconductor imaging chip including an array of photosensitive elements (2), a housing (1) having a cavity (region where the photodiodes (2) are formed) and a bottom surface (bottom surface of 1) a semiconductor chip (2) located within the cavity of the housing, the semiconductor chip (2) being covered by a transparent cover (3).

Enomoto does not teach the semiconductor chip being encapsulated in a transparent material wherein the transparent material has an uppermost surface substantially planar to an uppermost surface of the package.

It is conventional in the art and also taught by Koo combining optical devices into a single package in order to save space (col. 1, lines 23-33).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to package the photosensitive element of Enomoto as taught by Koo in order to save space and cut on processing cost. The combined structure of Enomoto and Koo would inherently have an imaging device that is encapsulated.

Furthermore the combined structure of Enomoto and Koo teaches an array of photosensitive elements that is capable of receiving an image and generating corresponding signals.

Regarding claim 29, Enomoto teaches substantially the entire claimed structure of claim 28 above including the transparent cover includes color filter (4₃, 4₂ and 4₁).

Regarding claim 31, the combined structure of Enomoto and Koo teaches (fig. 1) substantially the entire claimed structure of claim 28 above including the housing is formed of molded plastic (44).

The combined structure of Enomoto and Koo would inherently have a housing made of molded plastic.

Response to Arguments

7. Applicant's arguments with respect to claims 2-4 and 7-10, 32 have been considered but are moot in view of the new ground(s) of rejection. With respect to claims 11-16, 28-29, and 31, 33 applicant's argument has been fully considered but they are not persuasive. Applicant argues that the Enomoto in view of Koo rejection is appropriate because the combined structure does not teach or suggest a plurality of imaging devices, each having a "frame, support structure, and respective semiconductor device" encapsulated in a respective package "for protecting and supporting each said semiconductor device, each of said packages being formed of transparent material, said transparent material including injection molded resin for transmitting the image from said image source onto said semiconductor device. As stated above claims directed to apparatus must be distinguished from the prior art in terms of structure rather than function. *In re Danly*, 263 F.2d 844, 847, 120 USPQ 528, 531 (CCPA 1959). "[A]pparatus claims cover what a device is, not what a device does." *Hewlett-Packard Co. v. Bausch & Lomb Inc.*, 909 F.2d 1464, 1469, 15 USPQ2d 1525, 1528 (Fed. Cir. 1990).

Conclusion

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Samuel Admassu Gebremariam whose telephone number is 703 305 1913. The examiner can normally be reached on 8:00am-4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie Lee can be reached on (571) 272-1732. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9306 for regular communications and (703) 872-9306 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Samuel Admassu Gebremariam
November 1, 2004

A handwritten signature in black ink, appearing to read 'Eddie Lee', is positioned above the printed name and title.

EDDIE LEE
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800